

Claims

What is claimed is:

1. 1. A method for converting an alternating current (AC) input to a direct current (DC) output, the DC output providing power to a load, the method comprising:
 2. receiving the alternative current (AC) input;
 3. receiving a first feedback signal indicative of a target voltage required by the load;
 4. receiving a second feedback signal indicative of the DC output; and
 5. generating the DC output responsive to the first and second feedback signals, wherein the DC output is maintained within a predefined range of the target voltage.
1. 2. The method of claim 1, wherein a difference between the DC output and the target voltage is always positive while providing a charge to the load.
1. 3. The method of claim 1, wherein the second DC output provides power to the load, wherein the load is a battery.
1. 4. The method of claim 3, wherein the DC output is suitable to charge the battery.
1. 5. The method of claim 1, wherein upon a loss of the first feedback signal the second DC output is maintained to a predefined voltage.
1. 6. The method of claim 5, wherein the predefined voltage is equal to a previous voltage value of the DC output measured instantly prior to the loss of the first feedback signal.

- 1 7. The method of claim 1, wherein the predefined range includes a minimum
- 2 value slightly above 100% of the target voltage and a maximum value slightly
- 3 below 125% of the target voltage.

- 1 8. The method of claim 1, wherein the first feedback signal is received from the
- 2 load.

- 1 9. The method of claim 1, wherein the first feedback signal is received from a
- 2 controller operable to control the load.

- 1 10. The method of claim 1, wherein the first feedback signal is received as a
- 2 single digital signal, a pulse width modulation (PWM) signal, an analog signal,
- 3 a digital signal superimposed on another analog signal, or an SMBus signal.

- 1 11. The method of claim 1, wherein the DC output is maintained at a predefined
- 2 voltage upon completion of providing a charge to the load.

- 1 12. An integrated alternating current (AC) to direct current (DC) adapter
- 2 comprising:
 - 3 a rectifier module operable to receive an AC input and generate a first
 - 4 DC output;
 - 5 a buck converter module operable to receive the first DC output and
 - 6 generate a second DC output responsive to a control signal; and
 - 7 a controller module operable to receive a first feedback signal input
 - 8 indicative of a target voltage required by a load and a second feedback signal
 - 9 input indicative of the second DC output, the controller adjusting the control
 - 10 signal responsive to the first and second feedback signal inputs, the adjusting
 - 11 of the control signal causing the buck converter module to maintain the

12 second DC output to be within a predefined range of the target voltage.

1 13. The adapter of claim 12, wherein a difference between the second DC output
2 and the target voltage is always positive.

1 14. The adapter of claim 12, wherein the second DC output provides power to the
2 load, wherein the load is a battery.

1 15. The adapter of claim 14, wherein the second DC output is suitable to charge
2 the battery.

1 16. The adapter of claim 12, wherein upon a loss of the first feedback signal the
2 controller generates the control signal to maintain the second DC output to a
3 predefined voltage.

1 17. The adapter of claim 16, wherein the predefined voltage is equal to a
2 previous voltage value of the second DC output measured instantly prior to
3 the loss of the first feedback signal.

1 18. The adapter of claim 12, wherein the predefined range includes a minimum
2 value slightly above 100% of the target voltage and a maximum value slightly
3 below 125% of the target voltage.

1 19. The adapter of claim 12, wherein the first feedback signal is received from
2 the load.

1 20. The adapter of claim 12, wherein the first feedback signal is received from a
2 another controller operable to control the load.

- 1 21. The adapter of claim 12, wherein the first feedback signal is received as a
- 2 single digital signal, a pulse width modulation (PWM) signal, an analog signal,
- 3 a digital signal superimposed on another analog signal, or an SMBus signal.

- 1 22. An information handling system comprising:
 - 2 a processor;
 - 3 a system bus;
 - 4 a memory coupled to the processor through the system bus; and
 - 5 a power supply system operable to provide power to the processor, the
 - 6 bus and the memory, the power supply system being connectable to an
 - 7 alternating current (AC) power source, wherein the power supply system
 - 8 includes:
 - 9 a rectifier module operable to receive the AC input and
 - 10 generate a first direct current (DC) output;
 - 11 a buck converter module operable to receive the first DC output
 - 12 and generate a second DC output responsive to a control signal; and
 - 13 a controller module operable to receive a first feedback signal
 - 14 input indicative of a target voltage required by the processor and a
 - 15 second feedback signal input indicative of the second DC output, the
 - 16 controller adjusting the control signal responsive to the first and
 - 17 second feedback signal inputs, the adjusting of the control signal
 - 18 causing the buck converter module to maintain the second DC output
 - 19 to be within a predefined range of the target voltage.